REMARKS

The Office Action of June 7, 2005 has been received and its contents carefully considered.

Claims 1 to 22 are all the claims pending in the application.

Claims 7 and 9-22 have been objected to as being improper multiple dependent claims. The Examiner states that these claims have not been treated on the merits.

In response, applicant has amended the claims as set forth above to remove improper multiple claim dependencies. Accordingly, applicant requests withdrawal of this objection.

Claims 2-6 and 8 have been rejected under the second paragraph of 35 U.S.C. § 112 as indefinite.

The Examiner states that claim 2 is indefinite because it is not clear if the metal defined in claim 2 is the same as the metal used in claim 1.

In response, applicant has amended claim 1 to recite that the "metal" in claim 1 is a "bonding metal composed of nickel-phosphorus", and that plural abrasive grains are bonded by the bonding metal. In addition, applicant has amended claim 2 to state that surfaces of the abrasive grains are directly coated with metal layer.

The metal layer in claim 2, which is a metal for directly coating on the surfaces of the abrasive grains, can be different from the bonding metal recited in claim 1, which is a metal for bonding plural abrasive grains. See the present specification at page 10, lines 8-12.

The amendments to claim 1 to recite a "bonding" metal is based, for example, on the description in the specification at page 9, last two lines to page 10, line 12, and the amendment in

claim 1 of a "bonding metal composed of nickel-phosphorus" is based on original claim 9 and the Examples.

The amendment to claim 2 is based on FIGS. 1 and 2 of the specification.

The metal-coated abrasive of claim 2 includes plural abrasive grains, a metal layer which is directly coated on surfaces of the abrasive grains, and a bonding metal which is composed of nickel-phosphorus and bonds the plural abrasive grains.

As shown in FIGS. 1 and 2, the metal layer is directly coated on the surfaces of the abrasive grains. In contrast, the bonding metal bonds the abrasive grains with the metal layer.

In view of the above amendments, applicant submits that each of the bonding metal and the metal layer is clearly defined.

In view of the above, applicant submits that claim 2 complies with the requirements of the second paragraph of 35 U.S.C. § 112 and, accordingly, requests withdrawal of this rejection.

Claims 1-5 and 8 have been rejected under 35 U.S.C. § 102(b) as anticipated by Cho et al.

Applicant submits that Cho et al do not disclose or render obvious the subject matter of the present claims and, accordingly, requests withdrawal of this rejection.

The present invention as set forth in claim 1 as amended above is directed to a metal-coated abrasive comprising a bonding metal composed of nickel-phosporous and plural abrasive grains bonded by the bonding metal. Thus, the metal-coated abrasive of claim 1 includes a

bonding metal composed of nickel-phosphorus and plural abrasive grains bonded by the bonding metal.

According to the metal-coated abrasive of claim 1, irregularities formed by bonding the abrasive grains serve as an anchor in a resinoid bond, thereby a retention force of the abrasive in a resinoid bond is improved, and the grinding ratio is improved. See page 10, lines 12-19 and page 11, lines 9 to 13 of the present specification.

Furthermore, the plural abrasive grains of the present invention that are bonded by the bonding metal composed of nickel-phosphorus have a smaller bonding force than that of a conventional vitrified-bond material or conventional metal bond material, and thus the abrasive grains fall off the bonding metal portion when a large load is applied and then produce new abrasive grains which serve as a cutting edge, thereby preventing an increase in value of the grinding power. See page 11, line 22, to page 12, line 9, and the Examples.

In contrast, Cho et al disclose a superabrasive cutting element which includes superabrasive particles coated with and bonded to a carbide-former selected from the Group IVA, VA, or VIA or alloys thereof. The coating of adjacent particles is bonded together at high pressures and temperatures of the diamond forming region, forming a cemented matrix comprised of the coating metal and/or its carbide. See column 5, lines 55 to 63 of Cho et al.

Also, during the heat treatment or prior to the heat treatment, the inner surface of the metal coating forms a carbide (boride or nitride) layer as a result of reacting with the carbon of the diamond (boron or nitrogen of CBN). See column 6, lines 10 to 14 of Cho et al.

Furthermore, Cho et al also disclose that the matrix of the cutting element further includes a binding aid which improves the strength of the cemented structure and decreases its

porosity. See column 6, lines 49 to 51 of Cho et al. From these characteristics, wear resistance and thermal stability are improved. See the Examples of Cho et al.

As described above, Cho et al disclose a technique of bonding particles with a coating metal strongly, so as to improve the wear resistance and the thermal stability.

Therefore, in Cho et al, there is no description or suggestion of the compositions of the present invention in which the abrasive grains are bonded by the bonding metal composed of nickel-phosphorus having a smaller bonding force than that of the vitrified-bond material or metal bond material, and its effects in which the abrasive grains fall off the bonding metal portion when a large load is applied, thereby preventing an increase in value of the grinding power.

In view of the above, applicant submits that Cho et al do not disclose or render obvious the subject matter of the present claims and, accordingly, requests withdrawal of this rejection.

Claims 1-6 and 8 have been rejected under 35 U.S.C. § 102(b) as anticipated by Slutz et al.

Applicant submits that Slutz et al do not disclose or render obvious the subject matter of the present claims and, accordingly, requests withdrawal of this rejection.

Slutz et al disclose multigrain abrasive particles which include cubic boron nitride or diamond granules, and a sintered matrix which is derived from a coating on the granules and bonds the granules together, wherein the coating includes one or more layers of active coating material chemically bonded to the underlying surface of the granules and an outer layer of active coating material is sinterable. See column 6, lines 19 to 63 of Slutz et al.

As the active coating material, Slutz et al disclose titanium, zirconium, hafnium, cobalt, vanadium, niobium, tantalum, silicon, copper, chromium, nickel, molybdenum, tungsten, and borides, nitrides, carbides, and oxides thereof. See column 5, lines 31 to 38 of Slutz et al.

However, in Slutz et al, there is no description or suggestion of a bonding metal composed of nickel-phosphorus of the present invention.

In view of the above, applicant submits that Slutz et al do not disclose or render obvious the subject matter of the present claims and, accordingly, requests withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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